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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,800	06/27/2003	Sun Geol Hong	049128-5123	5889

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EXAMINER

AKKAPEDDI, PRASAD R

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/606,800

Applicant(s)

HONG ET AL.

Examiner

Prasad R Akkapeddi

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Sasuga et al. (Sasuga) (U.S. Patent No. 5,897,188).

As to claim 1: Sasuga discloses a liquid crystal display device (Fig. 23), a liquid crystal panel (PNL) with a plurality of pixels (liquid crystal cells) arranged in a matrix configuration (Fig. 4), a printed circuit board (PCB 1) having a drive circuit (CHI) for driving the liquid crystal panel, a supporter main (casing, SHD) for supporting the liquid crystal panel, a hole in the printed circuit board (FGP) and a projected part (FG, col. 19, lines 38-40) protruding from the supporter main (SHD) and Sasuga discloses that the projected part (FG) is inserted into the hole (FGP) so that the casing (SHD) and the printed circuit board (PCB 1) can be mechanically connected (col. 19, lines 42-45).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 3, 7, 9, 10 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasuga in view of Hwang (U.S. Patent No. 6,478,622).

a. As to claims 2, 3 and 7: Although Sasuga discloses the projections (FG) in the main supporter (SHD) and hole (FGP) in the printed circuit board (PCB 1) and the insertion of the projection into the hole to give mechanical stability, as described above, Sasuga does not explicitly teach the size and the shape of the projector or the hole.

Hwang in disclosing the mounting of printed circuit boards (300) to the main body (10), teaches that projected parts (22) in the main frame body and elliptical holes in the printed circuit board (222) are used to press-fit to hold the parts together (col. 4, lines 10-16). Hwang also teaches that the width of the elliptical body (221) is dimensioned so that the needle eye (projection 222) can press fit. Hence, the teachings of the dimensions as they relate to the dimensions of 0.02 to 0.05mm as recited in the instant claim 2 would have been obvious. (Please note: the teachings of Hwang are directly applicable to the device of Sasuga, since the attachment of the PCB to the main support as taught by Hwang are generally applicable to any electronic device and liquid crystal devices use electronic components and printed circuit boards and hence the teachings of Hwang and Sasuga, in the Examiner's opinion, are analogous art).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the specific dimensions as disclosed by Hwang to the dimensions for the device as disclosed by Sasuga so

that the cage (or main supporter) can be firmly and stably secured on the PCB (300) with or without soldering (col. 5, lines 8-11).

b. As to claims 9,10 and 14: Although Sasuga discloses the projections (FG) in the main supporter (SHD) and hole (FGP) in the printed circuit board (PCB 1) and the insertion of the projection into the hole to give mechanical stability, as described above, Sasuga does not explicitly teach the size and the shape of the projector or the hole.

Hwang in disclosing the mounting of printed circuit boards (300) to the main body (10), teaches that projected parts (22) in the main frame body and elliptical holes in the printed circuit board (222) are used to press-fit to hold the parts together (col. 4, lines 10-16). Hwang also teaches that the width of the elliptical body (221) is dimensioned so that the needle eye (projection 222) can press fit. Hence, the teachings of the dimensions as they relate to the dimensions of 0.02 to 0.05mm as recited in the instant claim 2 would have been obvious. (Please note: the teachings of Hwang are directly applicable to the device of Sasuga, since the attachment of the PCB to the main support as taught by Hwang are generally applicable to any electronic device and liquid crystal devices use electronic components and printed circuit boards and hence the teachings of Hwang and Sasuga, in the Examiner's opinion, are analogous art).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the specific dimensions as disclosed by Hwang to the dimensions for the device as disclosed by Sasuga so

Art Unit: 2871

that the cage (or main supporter) can be firmly and stably secured on the PCB (300) with or without soldering (col. 5, lines 8-11).

5. Claims 4-6 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasuga in view of Hashimoto (U.S. Patent No. 5,946,195).

a. As to claim 4: Sasuga does not disclose that the projected part includes a plurality of protrusions separated from each other by a first gap.

Hashimoto in disclosing the mounting of a semiconductor device to a circuit board (80) discloses projected parts (74) that include a plurality of protrusions (72) separated from each other by a first gap (Fig. 3B).

(Please note: the teachings of Hashimoto are directly applicable to the device of Sasuga, since the attachment of the circuit board (80) to the semiconductor device as taught by Hashimoto are generally applicable to any electronic device and liquid crystal devices use electronic components and printed circuit boards and hence the teachings of Hashimoto and Sasuga, in the Examiner's opinion, are analogous art).

b. As to claims 5 and 6: Hashimoto discloses the holes (82) where the plurality of projections are inserted have elliptical shapes (Fig. 6B) and also the gap extends along a direction parallel to a major diameter of the elliptical shaped hole (Figs. 3 and 6).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the disclosed projected part by

Hashimoto to the device of Sasuga to provide freedom of wiring layout and resolve the problems in relation to the ease of bonding (col. 1, lines 41-65).

c. As to claim 11: Sasuga does not disclose that the projected part includes a plurality of protrusions separated from each other by a first gap.

Hashimoto in disclosing the mounting of a semiconductor device to a circuit board (80) discloses projected parts (74) that include a plurality of protrusions (72) separated from each other by a first gap (Fig. 3B).

(Please note: the teachings of Hashimoto are directly applicable to the device of Sasuga, since the attachment of the circuit board (80) to the semiconductor device as taught by Hashimoto are generally applicable to any electronic device and liquid crystal devices use electronic components and printed circuit boards and hence the teachings of Hashimoto and Sasuga, in the Examiner's opinion, are analogous art).

d. As to claims 12 and 13: Hashimoto discloses the holes (82) where the plurality of projections are inserted have elliptical shapes (Fig. 6B) and also the gap extends along a direction parallel to a major diameter of the elliptical shaped hole (Figs. 3 and 6).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the disclosed projected part by Hashimoto to the device of Sasuga to provide freedom of wiring layout and resolve the problems in relation to the ease of bonding (col. 1, lines 41-65).

Art Unit: 2871

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sasuga.

As to claim 8: Sasuga discloses a liquid crystal display device having all the structural limitations as recited and explained above and the construction of the invention with the various embodiments described in the invention.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the construction steps as disclosed for the implementation of the device (col.3, lines 65-67).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prasad R Akkapeddi whose telephone number is 571-272-2285. The examiner can normally be reached on 7:00AM to 5:30PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Prasad R Akkapeddi, Ph.D

Application/Control Number: 10/606,800
Art Unit: 2871

Page 8

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Examiner
Art Unit 2871


TARIFUR R. CHOWDHURY
PRIMARY EXAMINER